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REPORT ON SURGERY.

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REPORT ON SURGERY.*

The past year has been a very active one in surgical work. In truth, there has been so much creditable surgery done in different fields that your reporter finds himself surrounded, as it were, by an "embarrassment of riches." In selecting matter to bring before you, I have not been unmindful of the fact that in our body we have general practitioners and specialists. My aim has been to present points interesting to all.

SENN'S HYDROGEN GAS.

Of new things brought to light within the past year, Senn's hydrogen-gas test as a diagnostic agent in penetrating wounds of the gastro-intestinal tract is conspicuously the most brilliant, as it is perhaps the most useful. It demonstrates beyond a doubt the existence of a perforation of some part of the gastro-intestinal tract.

All who have ever performed laparotomy for a supposed perforation of the intestines have

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felt the need of a certain means of diagnosis before opening the cavity. Symptoms are by no means uniform. In the four cases that I have seen operated upon it was a great relief to the operator to find the diagnosis of perforation confirmed when the abdomen was opened. I am sure such was the case the first time I operated, this being, so far as I know, the first operation of the kind in the State.

Hydrogen gas settles the question as definitely as an exploratory laparotomy. There is no danger in the former; considerable in the latter. Notwithstanding its certainty and harmlessness as a diagnostic agent, there are some who yet fail to use it. To fail to use it in medico-legal cases is to put one's self at a serious disadvantage.

For instance, a man is shot or stabbed in the abdomen. The surgeon supposes the intestines to be penetrated, but fails to confirm the diagnosis by insufflation of gas, and does an exploratory laparotomy. No wound of the intestines is found. The patient dies. At the trial of his assailant the shrewd advocate for the defense makes the plea that the man died, not from the wound, but as a result of the surgeon's knife. How can it be disproved? There is danger in any abdominal section. Hydro-

gen gas can be quickly generated for use in any case. Take a large bottle, put into it a few clippings of zinc, have the stopper perforated in two places, so as to pass through each a glass tube. Through one sulphuric acid and water are poured; through the other gas escapes and is conducted to a rubber balloon holding several gallons. The nozzle of an ordinary syringe furnished with a stop-cock is connected with the other end of the rubber bag. It is inserted into the rectum and the gas allowed to flow. An assistant makes pressure upon the anus to prevent the escape of gas. When gas passes the ileo-cecal valve a gurgling noise is heard. Gas finds its way into the peritoneal cavity if the gut be perforated, then escaping at the wound in the abdominal wall. Applying a light, it burns with a bluish flame. The diagnosis is now assured.

Relaxation favors the insufflation of gas. Its introduction also causes some pain; hence anesthesia must be induced.

I subjoin the twelve propositions of Senn:

1. The entire alimentary canal is permeable to rectal insufflation of air or gas.

2. Inflation of the entire alimentary canal from above downward through a stomach-tube seldom succeeds, and should, therefore, only be

resorted to in demonstrating the presence of a perforation or wound of the stomach, and for locating other lesions in the organ or its immediate vicinity.

3. The ileo-cecal valve is rendered incompetent and permeable by rectal insufflation of air or gas under a pressure varying from one fourth of a pound to two pounds.

4. Air or gas can be forced through the whole alimentary canal from anus to mouth under a pressure varying from one third of a pound to two pounds and a half.

5. Rectal insufflation of air or gas, to be both safe and effective, must be done very slowly and without interruptions.

6. The safest and most effective rectal insufflator is a rubber balloon large enough to hold sixteen liters of air or gas.

7. Hydrogen gas should be preferred to atmospheric air or other gases for purposes of inflation in all cases where this procedure is indicated.

8. The resisting power of the intestinal wall is nearly the same throughout the entire length of the canal, and in a normal condition yields to diastaltic force of from eight to twelve pounds of pressure. When rupture takes place, it either occurs as a longitudinal laceration of

the peritoneum on the convex surface of the bowel or as multiple ruptures from within outward at the mesenteric attachment. The former result follows rapid and the latter slow inflation.

9. Hydrogen gas is devoid of toxic properties, non-irritating when brought in contact with living tissues, and is rapidly absorbed from connective tissue spaces and all of the large serous cavities.

10. The escape of air or gas through the ileo-cecal valve from below upward is always attended by a blowing or gurgling sound, heard most distinctly over the ileo-cecal region, and by a sudden diminution of pressure.

11. The incompetency of the ileo-cecal valve is caused by a lateral and longitudinal distension of the cecum, which mechanically separates the margins of the valve.

12. In gunshot or punctured wounds of the gastro-intestinal canal, insufflation of hydrogen gas enables the surgeon to demonstrate positively the existence of the visceral injury without incurring the risks and medico-legal responsibilities incident to an exploratory laparotomy.

PENETRATING WOUNDS OF THE ABDOMEN.

Senn's discovery has greatly increased the interest felt in this subject, and led to a more

general discussion of it among surgeons everywhere. The result of it all has been to put laparotomy for penetrating wounds of the abdomen upon a sure footing. The surgeon no longer asks himself the question, "Am I warranted in performing laparotomy?" but he is more likely to say, "Can I conscientiously withhold the operation?"

Laparotomy is indicated (1) for hemorrhage into the peritoneal cavity; (2) for wounds of the hollow viscera. Recent statistics prepared by Dr. Coley, in the *Boston Medical Journal*, make a most favorable showing for shot wounds of the abdomen, which are confessedly more dangerous by far than stab wounds. He reports seventy-four cases, which he divides into three classes: (1) Those operated upon within twelve hours; (2) those operated upon after twelve hours; (3) in this class the time could not be ascertained. Class one, 39 cases, 18 recoveries, and 22 deaths—percentage of recoveries, 43.6; class two, 22 cases, 5 recoveries, 17 deaths—percentage of recoveries, 22.7; class three, 13 cases, 7 recovered, 5 died, 1 doubtful—percentage of recoveries, 57. Of 74 cases, 29 recovered—percentage of recoveries, 39.5.

These figures clearly indicate the advisability of an early operation. They also make a bet-

ter showing for laparotomy than did the statistics made by Sir William McCormac in his most excellent monograph upon the subject eighteen months ago. He reported thirty-two operations, which embraced all published cases at that time, with a mortality of 76.5 per cent. The mortality has been reduced from 76.5 to 60.5 per cent.

Turning from these figures to the statement of Otis, who says, in his *Surgical History of the War of the Rebellion*, "It may be doubted if a single incontestible case of recovery from shot wounds of the *small* intestine was observed," we find much to cheer us. Then, of course, the expectant plan of treatment alone was pursued.

The great Abernethy said of wounds of the intestines, "Nature would do nothing for such cases, but left them to their fate."

So, then, if practically all such cases die unoperated upon—for the few recoveries reported are but as exceptions proving the rule—shall we withhold an operation which saves more than one in three?

SURGERY OF THE BLADDER.

No viscus in the body has claimed more attention from surgeons everywhere during the past year than the urinary bladder.

Supra-pubic lithotomy has gained much in favor. Some of its more enthusiastic supporters have claimed for it an advantage over the perineal method in all cases. This, however, is an ultra position, and can not be sustained. Each clearly has its field. There are cases where it is unquestionably the better operation. In old subjects, in cases of large stone, and in encysted stone, supra-pubic cystotomy is to be preferred. In young subjects, small or average size stone not encysted, the perineal operation has the advantage. The high operation is the easiest done, but convalescence is shortened by perineal section. As to which is safer we can not yet say. Assendelft, who prefers the high operation, reports an unparalleled record. He operated one hundred and two times with only two deaths. Others operating by the same method have not approached such results.

His statistics in lithotomy are as Tait's in ovariectomy, unrivaled. In my judgment the judicious surgeon will not allow himself to become overzealous in the support of either operation, but will study his cases carefully and give each the benefit of the one which promises to meet the indications best. In supra-pubic cystotomy the bladder walls can

be sutured or not. In general it may be said that, when operating for stone, the walls should not be sutured, as there will be cystitis requiring free drainage. The incision can be made in the median line, or transversely, just above the symphysis pubis. The latter incision is said to be best in obese subjects; it gives more room, the bladder being more easily reached, and its interior more satisfactorily inspected. Trendelenburg, who has had most experience with the transverse incision, greatly prefers it. (It is incorrectly called his operation, though it was first suggested by Günther thirty-seven years ago.) It is thought that hernia is more likely to follow the cross than the vertical incision.

TUMORS AND FOREIGN BODIES IN THE BLADDER.

However surgeons may differ as to the merits of epicystotomy and perineal section for stone, there can be but one opinion as to which is best for tumors and foreign bodies. Epicystotomy has every advantage. Here the ideal after-treatment is to suture the bladder walls, as they are not diseased, and the bladder requires no drainage. The improved cystoscopes of Nitze and Leiter have made the diagnosis

of tumors and other substances within the bladder comparatively easy, and opened a new field of diagnostics.

CYSTITIS IN WOMEN.

Dr. Madden, of Dublin, believes that cystitis is both more frequent and serious in the female than in the male. He claims that the best way to treat cystitis is to dilate the urethra and neck of the bladder with the finger, then curette the proliferating mucous membrane and apply carbolic acid over its entire surface. He uses the glycerole of carbolic acid of the British Pharmacopeia. This treatment is to be used two or three times, at intervals of a week. It effects a cure in the most aggravated cases. He objects to Emmet's button-hole operation, upon the grounds that it is difficult to keep the fistulous tract patulous long enough to drain the bladder sufficiently, and that it is sometimes very difficult to close the fistula when it is desirable to do so.

ILIAC ABSCESS.

Abscesses arising from diseases of the cecum and vermiform appendix have been much discussed during the past year. In a most interesting discussion by the Surgical Society of

New York, the late Dr. Sands took the ground that they were subperitoneal, and should not be operated upon before the tenth day, so that adhesion of the peritoneum will have taken place. Weir and others held that they were usually intra-peritoneal, and for this reason should be operated upon not later than the third day.

Early operation promises the most.

DERMOID CYSTS OF THE NECK.

Dr. Keetley, of London, recently operated upon a large dermoid cyst of the neck, extending from the lower jaw to the clavicle. He intended excising the tumor, but, finding its attachments so deep and extensive, abandoned the idea of excision, and, instead, cut away a portion of the cyst wall, sutured it to the skin, and stuffed it with gauze after cleansing thoroughly. This is certainly quicker and safer than excision, and Keetley suggests it as a plan of treatment in all similar tumors. The result in his case was highly satisfactory.

WHITEHEAD'S OPERATION FOR INTERNAL HEMORRHOIDS,

While it has here and there gained the favor of some of the best men doing rectal surgery,

it is not likely to ever gain the extended use given the ligature. Consisting, as it does, of a complete excision of the pile, it is necessarily more difficult, protracted, and bloody than other operations. Whitehead claims that there is much less pain after his operation than the ligature; that convalescence is materially shortened, and there is little or no tendency to retention of urine, which so commonly follows the ligature.

Piles with prolapsus can perhaps be operated upon by Whitehead's method to the best advantage.

ALEXANDER'S OPERATION.

This operation, which was done so often several years ago, has, comparatively speaking, fallen into disuse. Your reporter fails to see how shortening the round ligaments can materially change the position of the uterus. They are too delicate to support much weight. Anatomically considered, they can at most only draw the uterus forward; therefore the operation is intended only for retroversion without fixation.

LACERATED PERINEUM.

Dr. Dudley, of New York, has recently described a new operation for lacerated peri-

neum. It differs from the operation of Emmet in the method of taking the stitches.

In our judgment neither of these operations is comparable to that of Mr. Tait. It is difficult to understand how any one who has ever performed Tait's operation could seriously think of doing any other. It is quick, showy, and brilliant.

TREATMENT OF CARBUNCLES.

Edmund Owen, of London, advocates the treatment of carbuncles by erosion. He has operated upon the largest carbuncles, and is highly pleased with the result. He cuts away all slough and undermined skin, scrapes thoroughly with a Volkmann's spoon, and dresses it antiseptically. In this way a painful and septic mass is converted into a painless and aseptic one.

Excision of carbuncles is advocated by Gerster and others. Your reporter has twice done this with such gratifying results that he is induced to believe that it constitutes one of the best means of treatment.

FRACTURES OF THE LOWER EXTREMITY.

Colles, of Dublin, holds "that a change from the horizontal to the sitting posture is in-

jurious to patients with fractures of any of the bones of the lower extremities, by showing that as the patient rises into a sitting posture the extremity of the ischium is used as a fulcrum, and, as the head of the femur is at least three inches above that point when the patient is horizontal, it must be pushed downward two or three inches. This must influence the point of weakest resistance, the seat of fracture."

HERNIA.

Perro advocates the following method for reducing strangulated hernias. The pelvis is raised upon a pillow, thighs flexed and *abducted*; "the scrotum and hernia are seized by the left hand and elevated toward the abdominal walls, and pressure made upon them. The index finger of the right hand is passed into the inguinal canal, and by a boring and rotating pressure is directed toward the horizontal portion of the pubis." In a short time the hernia disappears. He has succeeded in *six* instances where taxis as ordinarily employed had failed.

A NEW TREATMENT FOR ANEURISMS.

Macewen, of Glasgow, advises as a treatment of aneurisms the introduction of needles

into the sac until the endothelial lining of the opposite wall is reached. The oscillation of the needles scratches the endothelium and causes proliferation of the leucocytes, which are said to form a firm, fibrous mass. A demonstration of the operation was made by Macewen March 9th. It is not difficult to understand how the introduction of needles favors coagulation, and in this way cures an aneurism; but it is far from easy to believe that scratching the endothelial lining of a vessel leads to proliferation of leucocytes, which form a firm fibrous mass. Your reporter thinks the treatment based upon unsound pathology. In the first place there will be no epithelial coat to scratch with the needles in surgical aneurisms, as it will have ruptured before the surgeon sees it. But little dilatation of a vessel is necessary to rupture the inner coat. Secondly, there will be more or less laminated fibrin in the vast majority of aneurisms. As this tissue never becomes organized, it is unlikely that leucocytes in its midst so soon proliferate. I can not leave the subject of aneurisms without remarking that this and other operations, with intrinsically no more to recommend them, would not be practiced if the merits of compression as a treatment were generally appre-

ciated. There will be few aneurisms which will not yield to compression in some form.

Compression may be digital, instrumental, and by Esmarch's bandage, in the order named.

While digital compression is almost absolutely safe, it is followed by cure in 75.3 per cent of cases.

Digital compression is to be made by a relay of assistants, and is to be applied to the main artery either upon the cardiac or distal side of the sac. The former is much to be preferred.

Instrumental compression is made by some one of the many tourniquets, weights, etc. Results from this plan of treatment are quite if not more satisfactory than from digital compression. The mortality may be somewhat greater, but the percentage of cures is also greater.

Broca rigidly analyzed 127 cases treated by instrumental compression; 116 recovered—per cent, 91. There was no mortality in 127 cases.

A means of treatment, which in my judgment will prove more satisfactory to the busy surgeon than either of the former, is compression made with Esmarch's bandage—first practiced in 1875 by Reid, of the English navy. It is applied as follows: The bandage is applied firmly from the distal extremity of the

limb up to the sac, then lightly over the sac, then firmly again until a point well above the sac is reached. As considerable pain results after the first thirty minutes, it is best that the patient be lightly chloroformed. The bandage is kept on from thirty minutes to two or three hours. One application usually suffices to effect a cure. The advantage of this treatment is the short time required when compared with digital and instrumental compression. It cures 85 per cent of all cases.

The treatment of aneurisms by the ligature does not deserve the popularity it enjoys. Norris and Stephen Smith show it to be followed by a mortality of 33 per cent. It should never be practiced unless compression has failed to effect a cure.

PULMONARY SURGERY.

The lungs, for so long considered sacred territory, have capitulated and fallen within the domain of the surgeon's knife. There have been reported to date eighteen cases of pneumonotomy done for pulmonary abscess. Nine, or fifty per cent, were successful. The prognosis is better when the abscess connects with the pleural cavity.

Russian surgeons have been particularly active in doing pneumonotomy. Opensovsky,

who records a remarkable case of pneumonotomy for an abscess following pleuro-pneumonia, gives the following rules :

1. Pneumonotomy sometimes represents the only means of saving life in pulmonary abscess.

2. The operation is borne quite well.

3. It should be undertaken as early as possible ; that is, as soon as a pulmonary abscess has been diagnosed.

4. It is advisable to excise fairly long pieces of ribs and to make a free incision into the cavity, in order to secure a thorough removal of its contents and a thorough disinfection of the parts.

5. A thorough disinfection of pulmonary cavities seems to be endured without any untoward accidents.

6. Firm pleural adhesions constitute an important requisite for a successful issue of the operation, since they prevent suppurative pleurisy and make easier both the discovery of cavities and the removal of their contents.

PNEUMONECTOMY.

Dr. Zakharevitch, after a series of well conducted experiments upon dogs and rabbits, advises pneumonectomy in man. Others have reached the same conclusion.

He operated upon thirteen rabbits, with two

deaths, and seven dogs, with three deaths. From one lobe to an entire lung may be excised. A dog with only two lobes left him lived four years in perfect health, then dying of intercurrent disease. He says that "a minimal respiratory area compatible with life and health amounts to two pulmonary lobes."

These experiments lead to the hope that in time such operations can be done upon the human subject where only one lung or a part of it is diseased.

ANESTHETICS.

During the past year there has perhaps been no subject more generally discussed at the meetings of various medical associations and in the editorial pages of leading journals than the relative merits of the two leading anesthetics, ether and chloroform. Exhaustive papers upon the subject from all parts of the civilized world could be referred to. It is putting it mildly to say that chloroform has not suffered by the comparison.

While your reporter is prejudiced in favor of chloroform, a spirit of candor compels him to admit that the primary dangers from its use are greater than those from ether. Offsetting to a considerable extent, at least, this advantage which ether seems to have, are its second-

ary dangers. Until recently, even now they represent an unknown quantity.

Deaths which have been recorded as due to pulmonary edema, bronchitis, pneumonia, uremia, nephritis, etc., following surgical operations, have unquestionably been due to ether.

Such can not be said of chloroform, as it kills quickly when it does kill. Notwithstanding the literature of the subject, there are to-day many surgeons who believe in the almost absolute safety of ether. This is easily disproved.

In a paper read before the New York Academy of Medicine Dr. Weir reported 5 deaths from ether in 10,789 surgical operations. Another surgeon reported 2 deaths in his own practice in as many months. These figures do not include deaths due to etherization occurring some time after operations.

It is interesting to note that Hunter McGuire reports 28,000 cases of chloroform anesthesia without a death, Nussbaum 40,000 without death, and a surgeon in India nearly 45,000 administrations with the same result; and yet some who use ether recklessly are as afraid of chloroform as the "devil of holy water."

Contrary to the general teaching upon the subject, ether may kill by heart failure as well as through the respiration. Of 40 incontesti-

ble cases of deaths from ether, 10 died at the heart first.

It is not to be expected that ether will ever supplant chloroform, or chloroform ether. Nor is it to be desired. It is fortunate that we have both agents to avail ourselves of. Each clearly has its field of usefulness. What is to be hoped is that surgeons will make careful examinations of patients before giving either anesthetic. I doubt not that the time will come when all patients will be as carefully examined before an anesthetic is chosen as they would be if applying for life insurance. By doing this the danger will be minimized.

Chloroform is to be rejected in all persons with degenerative changes in the heart. Valvular disease is no contra-indication if the organ functionates well.

In anemia and nervous prostration chloroform is more dangerous than ether.

Ether is contra-indicated in all pulmonary disease, in nephritis, and in all operations where the after nausea and retching are, for evident reasons, undesirable. On account of its great inflammability it is not to be used at night, nor in the day when the actual cautery is to be used. It is also contra-indicated in surgical emergencies where the stomach is full, on ac-

count of its greater liability to provoke vomiting.

Neither is well borne in advanced Bright's disease; chloroform is the safer. In childhood chloroform is always to be preferred. In advanced age it is yet an open question as to which is the safer agent. If there be fatty degenerations, chloroform is out of the question. In pulmonary troubles, which are so common with the old, ether is contra-indicated.

I am loath to leave the subject of chloroform without a word as to the method in which it should be administered.

Statistics, if they prove any thing, clearly show the death-rate from chloroform to be in a great measure due to faulty administration.

The common practice of urging patients to "take long breaths" and to "suck it in" at the commencement of anesthesia can not be too pointedly condemned. Chloroform is the most powerful of all anesthetics, possessing the inherent toxical property to the greatest degree, and for this reason should be given most cautiously, so that the system will become gradually accustomed to its use and the respiratory and cardiac centers in the medulla not overwhelmed at the outset. By a slow administration spasm of the glottis is also prevented.

The method I have seen Prof. Yandell follow so often is, I think, the best. He allows the patient to begin the administration, and when he is getting well under the influence of the vapor takes it from him. The timidity of the patient will be an effectual barrier to his becoming too rapidly anesthetized.

The danger is directly proportional to the amount of the vapor in the blood at a given time.

Another very common error is for the operator to be continually suggesting to his anesthetist how to do his work. Frequently we hear from him such remarks as "Push it, doctor; don't be afraid of it," and the like.

A timid or nervous anesthetist, especially if he be less experienced than the operator, is apt, in his endeavor to please his chief, to be too lavish with his chloroform. We have all seen this too often.

To bring my report within time limits, interesting matter has necessarily been eliminated.

LOUISVILLE.

